Supporting Document 2

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

# Staff Report

# Tentative Order No. R9-2003-0111

## General Waste Discharge Requirements for Discharges of Treated Groundwater from Volatile Organic Compound Impacted Sites to Land in the San Diego Region

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# TABLE OF CONTENTS

## 1.0 INTRODUCTION

The General Waste Discharge Requirements (WDRs) in tentative Order No. R9-2003-0111 apply specifically to discharges of treated groundwater, from volatile organic compound (VOC) cleanup sites, to the subsurface by direct injection through a well, or by rapid percolation or infiltration through the soil. In many parts of the San Diego Region, groundwater contains levels of chemical constituents that exceed applicable water quality objectives for groundwater contained in the Water Quality Control Plan, San Diego Basin (Basin Plan). Tentative Order No. R9-2003-0111 addresses this concern by requiring that treated groundwater discharged to land must have a low threat to receiving groundwater.

## 2.0 BACKGROUND

Disposal options for treated groundwater are becoming limited in the San Diego Region (9) because local wastewater treatment systems lack the capacity to accept treated groundwater. Disposal of treated groundwater in surface streams is problematic because, in most cases, the treated groundwater does not meet the effluent limitations for chemical constituents contained in the Regional Board Order which regulates the discharge of treated groundwater to surface streams (Order No. 2000-90, General Waste Discharge Requirements for Temporary Groundwater Extraction and Similar Waste Discharges to San Diego Bay and Storm Drains or Other Conveyance Systems Tributary Thereto).

Another disposal option for treated groundwater is discharging it to the subsurface by direct injection through a well, or by rapid percolation or infiltration through the soil. However, treated groundwater may contain chemical constituents, like total dissolved solids, chloride, sulfate, or metals, in concentrations that exceed applicable water quality objectives for groundwater contained in the Water Quality Control Plan, San Diego Basin. Parts of the San Diego region contain groundwaters with ambient background concentrations of chemical constituents that exceed applicable water quality objectives for these constituents. Discharges of treated groundwater to land with ambient background concentrations of chemical constituents in excess of water quality objectives will have a low threat to water quality if the treated groundwater is discharged to the same aquifer from which it was extracted and to receiving groundwater with the same or poorer water quality.

## 3.0 FINDINGS

a) Groundwater cleanup of VOCs is ongoing at approximately 1200 sites throughout the San Diego Region. This number is based on case reports in the Geotracker data warehouse and includes groundwater cleanup cases in the Regional Board's SLIC and UST programs, and Riverside, Orange and San Diego Counties' Local Oversight programs. Soil only cleanup cases are not included in this estimate. These sites are

typically gasoline stations, car dealerships, and petroleum terminals, where fuel is stored in aboveground and underground storage tanks. Other types of VOC cleanups include non-fuel sites that use chlorinated organic compounds in their businesses (for example, dry cleaners, plating shops, and industrial sites).

b) Fuel VOCs principally consist of benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tertiary butyl ether (MTBE), and other fuel oxygenates. Non-fuel VOCs consist of chlorinated organic compounds, principally perchloroethylene (PCE) and tetrachloroethane (TCE).

c) Cleanup of groundwater at many sites involves the extraction of polluted groundwater for above-ground treatment in a system that removes the VOCs.

d) Disposal options for treated groundwater are becoming more limited in the San Diego Region (9) because wastewater treatment systems lack the capacity to accept the treated groundwater. Areas of particular concern include Temecula, where Eastern Municipal Water District does not have the capacity to accept treated groundwater, and similarly, the City of San Diego. Disposal of treated groundwater in surface streams is problematic because, in most cases, the treated groundwater does not meet the effluent limitations for inorganic constituents contained in the Regional Board order which regulates this type of discharge. As a result, dischargers have been faced with mandatory minimum penalties.

e) Another disposal option for treated groundwater is to discharge it to the subsurface by direct injection through a well or by rapid percolation or infiltration through the soil. If the treated groundwater is returned to the same aquifer from which it was extracted, there should be no adverse impacts to the receiving water quality or to beneficial uses from the discharge. This is because the background water quality of the effluent and receiving groundwater should be similar.

f) The extracted groundwater and the receiving groundwater are from the same aquifer if the groundwaters are in direct hydraulic connection, in the same hydrogeologic unit and approximate depth interval, and if the extraction and discharge points are in the same vicinity.

g) Parts of the San Diego Region contain groundwaters with ambient background concentrations of chemical constituents that exceed applicable water quality objectives for these constituents. Discharges of treated groundwater from these areas to the same aquifer would exceed water quality objectives but still pose a low threat to water quality and beneficial uses because the treated groundwater would have the same or better water quality than the receiving groundwater. Further, the removal of VOC pollutants in the treatment process would impart a net benefit to groundwater quality at the site.

h) Disposal of treated groundwater by spray irrigation could pose a significant threat to the quality of the receiving groundwater because the uptake of water by plants in the

spray field could concentrate chemical constituents in soil that would leach to groundwater in high concentrations during subsequent irrigation cycles. Thus, this tentative Order does not regulate disposal of treated groundwater by spray irrigation.

i) Monitoring the water quality of the extracted groundwater (influent), the treated groundwater (effluent), and the receiving groundwater prior to and during the discharge will provide the data needed to ensure that the receiving groundwater quality is not degraded by the discharge. This will ensure that VOC pollutants are not introduced to the receiving water, and that the water quality of the treated groundwater is the same or better than the receiving groundwater. Accordingly, the tentative order requires compliance with a Monitoring and Reporting Program.

j) As stated in the tentative Order, concentrations of the non-VOC chemical constituents in the treatment system effluent (treated groundwater) shall not exceed the concentrations of those non-VOC chemical constituents in the treatment system influent (extracted groundwater) by more than 15 percent (15%) for any sampling event. Similarly, the concentrations of the non-VOC chemical constituents in the effluent shall not exceed the concentrations of those non-VOC chemical constituents in the receiving groundwater by more than 15 percent (15%) for any sampling event. An allowance of 15 percent (15%) or lower in non-VOC chemical constituent concentrations of the influent versus the process effluent or receiving water is recommended to encompass error due to spatial, seasonal, and sampling and analysis variability. Site specific WDRs will be necessary for treatment systems that consistently result in a constituent concentration above that of the receiving water. Consistent constituent exceedences ultimately make it difficult for the discharger to be compliance with the 12-month running average established in Monitoring and Report Program No. R9-2003-0111.

k) The Regional Board may require any discharger regulated under this tentative Order to be regulated under individual WDRs with specific requirements if the discharger has been notified in writing that individual WDRs are required. This notice shall include a brief statement of the reasons for this decision, a Standard Form 200 for filing a Report of Waste Disharge (ROWD), a statement setting a deadline for the discharger to submit the ROWD, and a statement that on the effective date of the individual requirements the discharge is no longer regulated under this tentative Order.

l) The discharges of treated groundwater to land are more appropriately regulated under general WDRs than individual WDRs because the discharges pose a low threat to water quality and because general WDRs would:

    1) simplify and expedite the process by which these discharges are regulated;
    2) reduce Regional Board time expended on preparing and considering individual WDRs for each project;
    3) provide another disposal option in areas where disposal to a sanitary sewer system is not possible due to lack of capacity;

4) enhance and protect surface water quality by providing alternatives to the discharge of wastewater to surface waters; and
5) provide a level of protection comparable to individual, site-specific WDRs.

m) The Regional Board, acting in accordance with section 13240 et. seq. of the California Water Code (CWC), adopted the "Water Quality Control Plan, for the San Diego Basin (Basin Plan)" on September 8, 1994. The State Water Resources Control Board (SWRCB) subsequently approved the Basin Plan on December 13, 1994. Subsequent amendments to the Basin Plan have also been adopted by the Regional Board and approved by the SWRCB. The Basin Plan designates the beneficial uses, water quality objectives, and prohibitions, which are incorporated herein. The requirements contained in this tentative Order are consistent with the Basin Plan because discharges regulated under the tentative Order will not cause the quality of the receiving groundwater to be degraded or cause the impairment of any beneficial uses of the groundwater.

n) Discharges regulated by this tentative Order are classified to be Category IIIB as defined in the Threat to Water Quality and Complexity in the current fee schedule listed in the California Code of Regulations (CCR) Title 23, section 2200 (Attachment A). Category "III" includes those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2. Category "B" includes those discharges of waste not included in Category A that has physical, chemical, or biological treatment systems, or any Class II or Class III waste management units. The discharges regulated by this order have a "IIIB" rating because the discharge and the receiving groundwater will have similar water quality. Thus, any impairment of designated beneficial uses would be minor compared to Categories 1 and 2. Also, the discharge consists of effluent from a physical, chemical or biological treatment system, thus, Category B applies to the discharge.

o) SWRCB Resolution No. 68-16 requires that the Regional Board, in regulating the discharge of waste, maintain high quality waters of the State. The Regional Board must have sufficient grounds to adopt findings which demonstrate that any water quality degradation will:

1) be consistent with the maximum benefit to the people of the State;
2) not unreasonably affect existing and potential beneficial uses of such water; and
3) not result in water quality less than described in the Basin Plan.

The impact on existing water quality of the discharges regulated by this tentative Order will not be significant and will not unreasonably affect beneficial uses because the water quality of the effluent water will always be of the same or better quality than the receiving water. Therefore, the discharges are consistent with the provisions

of Resolution No. 68-16 which requires the Regional Board, in regulating the discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Board's policies.

p) Pursuant to CWC section 13304.1, the Regional Board is required to consult with the California Department of Health Services, public water system operators, and groundwater management agencies within this region concerning the requirements of the Order. The Regional Board complied with the requirement by requesting comments from the California Department of Health Services, public water system operators, and groundwater management agencies regarding this tentative Order. As of the date of this staff report, no comments were received from these agencies. If received prior to adoption of the tentative Order, the comments of these agencies concerning this Order will be considered by the Regional Board in prescribing the general WDRs contained in the tentative Order. Prior to seeking regulation under the tentative Order, a discharger must consult with the affected agencies regarding a specific project and provide the Regional Board a written description of, or copies of written comments from these agencies along with a ROWD.

q) An affected groundwater management entity includes any person who pumps, uses, manages, distributes or has any other interest in the quality of water in a water body affected by discharges of waste regulated under this tentative Order.

r) A public water system is a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year (Health and Safety Code section 116275(h)). An affected public water system is a public water system within whose area the discharge regulated by the Order occurs.

s) Water Code section 13304.1 does not pertain to private wells owners. However, prior to seeking regulation under the tentative Order, the discharger will be required to notify private well owners whose well is within 1000 feet of the proposed discharge point. The discharge must submit proof of notification along with a ROWD.

t) The issuance of site specific or general WDRs will not affect the choice of technology used to extract, treat and dispose of groundwater at the cleanup site. Thus, the adoption of the tentative Order will not cause additional energy usage. In accordance with the Governor's Executive Order requiring any proposed activity be reviewed to determine whether such activity will cause additional energy usage, this Regional Board has determined that implementation of these general WDRs will not result in a change in energy usage exceeding what would be used if site-specific WDRs were issued for cleanup at these sites.

## 4.0 COMPLIANCE WITH CEQA

On March 28, 2002, the Regional Board issued a Notice of Preparation of an Environmental Initial Study for issuance of general Waste Discharge Requirements for in-situ groundwater remediation and return of treated groundwater to the same aquifer zone. A scoping meeting for the project was held at the Regional Board offices on April 12, 2002. Based on the environmental initial study and comments received at the scoping meeting, a Negative Declaration was prepared for the project and circulated for comments through the State Clearinghouse. Comments were not received by the Regional Board. A public notice that the Regional Board would consider certifying the Negative Declaration at its June meeting was published in the Orange County Register and Riverside Press Enterprise on May 6, 2003, and published in the San Diego Union Tribune on May 7, 2003. Tentative Order R9-2003-0111 proposed to regulate only the discharge to land of treated groundwater, not the use of in-situ remediation chemicals for groundwater cleanup. The environmental impacts from new discharges regulated by this order would be less than significant. Separate general Waste Discharge Requirements are being considered for the use of in-situ remediation chemicals.

## 5.0 STAFF RECOMMENDATION

The Regional Board staff recommends adoption of tentative Order R9-2003-0111.